CHAPTER 8
STRUCTURES DESIGN COMPONENT

8-1 Introduction

8-1.1 The image of an installation is primarily determined by the design character and siting of the buildings. Therefore, the structural design component of the visual analysis is of primary importance in the definition of visual zones and themes, and in the assessment of assets and liabilities.

Fig. 8.1 Indigenous Structure is an Asset

8-1.2 The structural component includes the inspection and analysis of the character of the buildings as well as the relationship of buildings to one another and to their environment. The use of architectural style, materials, and colors that are indigenous to a region result in a more sustainable development. The preservation of historic structures provides a sense of heritage in relationship to past generations.

Fig. 8.2 WW II Barracks are a Visual Liability

8-1.3 The visual analysis of structure also includes concern for accessibility, use of materials, placement of entrances, incorporation of additions and renovations, the incorporation of plazas and courtyards, and the appropriateness and quality of building maintenance.

8-1.4 This chapter provides the objectives and visual determinants that should be utilized to identify and assess the structural quality of the installation.

Fig. 8.3 Preserved Historic Buildings are an Asset

8-2 Structure Objectives

8-2.1 The architectural style of the existing and future buildings for installations should be designed and located to reinforce the sustainability of the installation. Sustainable building design reduces construction and maintenance cost and conserves energy requirements. The following objectives of

the structural component are all elements of sustainable development:

8-2.1.1 Adapt building designs to natural site conditions (Fig. 8.4).

8-2.1.2 Design buildings in clusters to preserve land and reduce construction and maintenance costs.

8-2.1.3 Develop a coherent architectural character that results in the blending of new and old structures (Fig. 8.5).

8-2.1.4 Use indigenous architectural styles that have proven efficient in the region.

8-2.1.5 Preserve historic buildings.

8-2.1.6 Use available indigenous construction materials and construction practices (Fig. 8.6).

Fig. 8.4 Adapt Buildings to Site Conditions

Fig. 8.5 Blend Old and New Structures

Fig. 8.6 Use Indigenous Materials

8-3 Structural Character

8-3.1 The character of installation architecture typically varies according to the use of the structure and when it was built. New facilities are often incompatible with older facilities. Warehouse facilities are usually incompatible with administration or barracks facilities.

8-3.2 The difference in character is the result of the designer ignoring the character and scale of adjacent buildings or the attempt to relate them through some unsuccessful imitative technique.

8-3.3 There are many examples of new contemporary buildings that are designed to successfully blend with older buildings. This coordination of structural character on an installation provides a consistent and coherent “sense of order” and “sense of place”. This relationship of design is achieved through the use of compatible scales, massing, form, color, texture, materials, and fenestration. These design techniques can be utilized in the visual

review and analysis of the installation. They are further explained below:

8-3.3.1 Scale – Scale is the terminology for the size of a building facade in relation to man. Buildings that include predominant vertical facades that dwarf the individual are defined as monumental in scale. Buildings with more horizontal facades designed to relate more to the size of the human figure are defined as human scale (Fig. 8.7). The scale of most buildings on installations should be more human than monumental.

8-3.3.2 Massing – The overall bulk or volume of a building or buildings (Fig. 8.7). The size and proportion of the individual buildings in a grouping of buildings should be designed to be proportionally compatible with the adjacent structures.

8-3.3.3 Form – The form of a building is determined by its size, mass, and proportions. The use of similar building forms provides continuity to the installation architectural impact. The result is a more aesthetically pleasing environment.

8-3.3.4 Color – The use of a color scheme that is consistent throughout the installation results in continuity of buildings. The color scheme should be predominantly lighter shades with bolder colors as highlights. Softer, lighter colors provide a cooling effect in warmer climes. Deeper, bolder colors result in greater heat absorption in colder climes (Fig 8.8).

8-3.3.5 Texture – The use of materials of similar texture in buildings helps to provide visual continuity for the installation (Fig 8.8).

8-3.3.6 Materials – The use of the same materials in the structure and trim of buildings helps provide visual continuity.

8-3.3.7 Fenestration – Structural features such as doors, windows, and building decoration or details should be similar in size, and proportion to promote architectural compatibility.

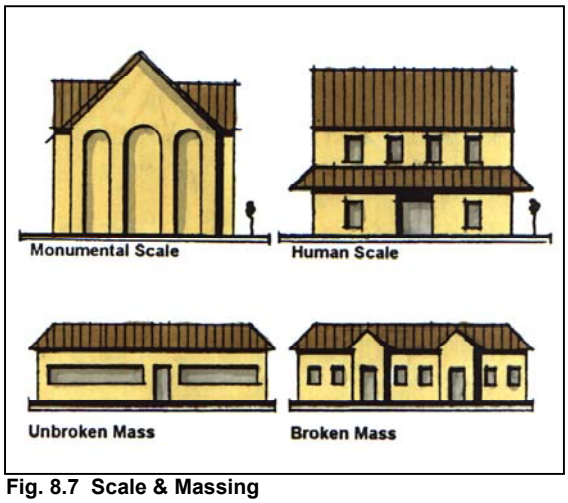

Fig. 8.7 Scale & Massing


Fig. 8.8 Color & Texture


Fig. 8.9 Indigenous Architecture

8-4 Indigenous Structure

8-4.1 The historical architectural styles within the various regions of the world have typically emerged through time to respond to the climatic and cultural impacts of the particular region (Fig 8.9). The use of specific materials and design considerations such as wide eaves in hot, rainy areas, shady plazas and courtyards in more arid areas, and high pitched roofs in snow areas have emerged as specific response to climatic conditions.

Fig. 8.10 Building Fenestration

8-4.2 Sustainability in the design and construction of buildings includes incorporating time-proven structural designs that are indigenous to the region. Indigenous design elements should be utilized in the design of new buildings (Fig. 8.10).

8-5 Historic Architecture

8-5.1 The visual integrity of historically noteworthy buildings and areas on military installations should be preserved and protected. Historic preservation includes three categories of significance:

Fig. 8.11 Preserve Historic Structures

8-5.1.1 Historical Structures – Buildings that are noteworthy architecturally and are examples of a particular style or period (Fig. 8.11).

8-5.1.2 Historical Places – Buildings and areas that are noteworthy from a historical point of view because of a significant event in national or military history.

8-5.1.3 Other Historical Facilities – Buildings that are less noteworthy architecturally or historically, but are still usable and functional facilities that provide visual interest and a sense of heritage to the installation.

8-5.2 The techniques of historical preservation vary according to the condition of the building as follows:

8-5.2.1 Conservation - is appropriate for buildings that are physically sound and have their original design integrity and value (Fig 8.12).

8-5.2.2 Renovation - is applicable to buildings that require general upgrading to retain their design integrity and value (Fig 8.13).

8-5.2.3 Rehabilitation - is applicable to buildings that have deteriorated or are economically and functionally outmoded, and require modernization of electrical and structural elements.

8-5.2.4 Restoration - is applicable to structures of noteworthy historic, architectural or aesthetic importance whose integrity has been lost or covered up and must be restored to achieve their original appearance.

8-5.2.5 Adaptive Reuse - is a form of rehabilitation where structures are converted from their original use to an entirely new use (Fig 8.14).

8-5.2.6 Reconstruction - or replication refers to structures that are recreated from original designs to portray a historical setting or to serve as a historical museum or display (Fig 8.15).

8-5.3 The preservation of historical structures and places should be done according to government procedures for registration as significant structures on the National Register of Historic Places.

8-6 Building Entrances

8-6.1 A building entrance is a primary feature of any building design. The entrance should be defined and recognizable as an obvious point of entry

Fig. 8.12 Conservation

Fig. 8.13 Renovation

Fig. 8.14 Adaptive Reuse of Historic Building

Fig. 8.15 Reconstruction

regardless of the size or importance of the building (Fig. 8.16).

8-6.2 The entrance to a building should be in a prominent location of the exterior of the building and should be oriented toward the primary adjacent public space such as a courtyard, lawn, parking lot, or street.

8-6.3 The fenestration details of an entrance should be designed to provide continuity between other entrances to the building and the entrances of other adjacent buildings.

Fig. 8.16 Restored Historic Entrance

Fig. 8.17 Contemporary Building Entrance

8-7 Building Accessibility

All facilities should be designed to be accessible to and usable by persons with disabilities. New construction and alterations to existing facilities must be designed and constructed to meet the requirements of the Americans with Disabilities Act Architectural Guidelines (ADAAG), and the Uniform Federal Accessibility Standards (UFAS), with the most stringent standards applied in the event of conflicts.

8-8 Renovations and Additions

When existing buildings are renovated or additions are constructed, the architectural character of the renovation or addition should be compatible with the architectural character of the existing building and the adjacent buildings (Fig 8.18).

Not This **This**

Fig. 8.18 Renovations and Additions

8-9 Plazas and Courtyards

8-9.1 Outdoor plazas and courtyards should be designed and located to provide for activities that occur indoors to be expanded outdoors (Fig. 8.19). Plazas and courtyards can be located as a part of the primary entrance to a building, or as an extension of non- primary entrance areas to the outside. They can be located between buildings to provide an outdoors link to

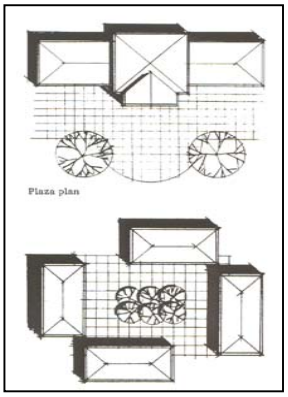

Fig. 8.19 Plazas and Courtyards

connect the buildings visually and physically.

8-9.2 Plazas and courtyards should be designed to be compatible with the architectural character of the adjacent buildings. The outdoor areas should utilize the architectural elements that make up the building character. The outdoor areas should also be designed to provide a visual extension of the interior spaces.

Fig. 8.20 Buildings Should Be Maintained

8-10 Building Maintenance

All buildings on an installation should be maintained on an ongoing basis (Fig 8.20). General maintenance should be performed on an ongoing basis. This includes keeping the exterior surfaces and windows clean and in good repair and the surrounding area neat and organized. More costly maintenance such as painting, roofing, and wood replacement should be attended to according to an organized schedule of maintenance requirements.

Fig. 8.21 Architectural Liability

8-11 Architectural Assets & Liabilities

The information provided in this chapter should be used in the visual survey and assessment of the visual zones within the installation. Architectural assets and liabilities (Fig 8.21 & 8.22) should be listed in the installation design manual together with recommendations for projects.

Fig. 8.22 Architectural Asset